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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/079,956	02/19/2002	Roberto Padovani	010536	9226

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EXAMINER	
HO, DUC CHI	

ART UNIT	PAPER NUMBER
2419	

NOTIFICATION DATE	DELIVERY MODE
02/18/2009	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.	Applicant(s)	
	10/079,956	PADOVANI ET AL.	
	Examiner	Art Unit	
	DUC C. HO	2419	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *21 May 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-22,24-28 and 30-50* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-4, 7-10, 14-22, 24-28, 30-50* is/are rejected.

7)☒ Claim(s) *5,6 and 11-13* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

1. Claims 43-49 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

Regarding claim 43, a method is not a data structure, such that "A computer-readable media embodying a method for determining.." fails to define structural and functional interrelationships between a data structure and computer software and hardware to permit the steps of the method to be realized. Therefore, claims 43-49 are non-statutory.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 42-49 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 42 recites the limitation "said receiver" in line 4. There is insufficient antecedent basis for this limitation in the claim.

Claim 43 is indefinite. In the limitation "A computer-readable media embodying a method for determining receive diversity in a receiver of a communication system", it is

unclear as to how "A computer-readable media", which is hardware, stores a method, which is a series of steps.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103© and potential 35 U.S.C. 102(f) or (g) prior art under 35 U.S.C. 103(a).

5. Claims 1, 7, 42-43, and 50 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gustafsson et al. (US 7,024,168), hereinafter referred to as Gustafsson, in view of Yano et al. (US 6,615,386), hereinafter referred to as Yano.

Regarding claim 1, Gustafsson discloses an apparatus for use in a communication system (col. 3, lines 51-53, where a mobile station, i.e. apparatus, communicates in a system, see also Fig. 1), comprising: a receiver, including a plurality of receiver chains adapted for processing in the receiver (col. 3, lines 51-58, where the mobile station uses diversity, and col. 1, lines 52-58, where diversity constitutes the use of multiple receive antennas and processors, i.e. receiver chains, see also Fig. 4), for receiving a signal and determining a channel condition of the signal (col. 4, lines 4-9, where a mobile station uses radio performance to determine whether to use diversity, and col. 2, line 66-col. 3, line 7, where a mobile measures radio performance by measuring the SNR, BER, FER, etc., i.e. channel condition, of a received signal); and a control system for controlling receive diversity and minimum power consumption of said receiver by selecting a number of said plurality of receiver chains based on said determined channel condition (col. 4, lines 4-9, where the mobile determines whether to use diversity based on the radio performance, i.e. channel condition, and remaining battery power).

Gustafsson does not expressly disclose receiving a pilot channel and determining a channel condition of the pilot channel. However, using a pilot channel to determine a channel condition of the pilot channel is well known in the art, as is evidenced by Yano (col. 3, lines 8-10). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to receive a pilot channel and determine a channel condition of the pilot channel. One of ordinary skill in the art would

have been motivated to do this to determine the channel condition using a commonly used technique.

Regarding claim 7, this claim has similar limitations as claim 1. Therefore, they are rejected under Gustafsson-Yano for the same reasons set forth in the rejection of claim 1.

Regarding claim 42, this claim has similar limitations as claim 1. Therefore, they are rejected under Gustafsson-Yano for the same reasons set forth in the rejection of claim 1.

Regarding claim 43, this claim has similar limitations as claim 1. Therefore, they are rejected under Gustafsson-Yano for the same reasons set forth in the rejection of claim 1.

Regarding claim 50, this claim has similar limitations as claim 1. Therefore, they are rejected under Gustafsson-Yano for the same reasons set forth in the rejection of claim 1.

6. Claims 2-4, 8-10, 44-46 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gustafsson, in view of Yano, and further in view of Rich (US 5,940,452).

Regarding claim 2, Gustafsson and Yano disclose all claimed limitations, except the control system is configured for reducing the number of selected receiver chains when the determined channel condition is above a first channel condition threshold.

Rich discloses dual mode radio subscriber unit having a diversity receiver apparatus and method therefore. In Rich a radio subscriber unit 702-fig.7 includes two receivers 126, and 706, or receiver chains for processing in the unit 702-fig.7, for receiving a carrier to interference ratio Ec/Io of a pilot channel, and inherently

determining a response of the ratio Ec/Io of the pilot channel , see col. 22-line 15 to col. 24-line7; a controller 108-fig.7 controls the selection the first receiver 126 and the second receiver 706-fig.7 based on the response of the interference ratio, see col. 22, lines 53-55. The controller 108-fig.7 in response to the ratio of Ec/Io greater than a predetermined threshold selects a number of antenna in the first selected state, in which one antenna coupling to a receiver from at least two antennas selected, see col.10, lines 1-13; fig. 6, step 606; col. 13-line 33 to col. 15-line 19.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to employ a mechanism in which when a determined channel condition is above a first channel condition threshold, the controller is adapted to select a number of antenna as taught by Rich into the combination system of Gustafsson and Yano. The suggestion/motivation for doing so would have been to maintain battery power for longer performance.

Regarding claim 3, in Rich the control system108-fig.7 in response to the ratio of Ec/Io below than a predetermined threshold selects a number of antenna in the third selected state, in which two antennas coupling to receivers selected, fig. 6, step 612, 616.

Regarding claim 4, in Rich this claim has similar limitations as claims 2, and 3. Therefore, it is rejected under Rich for the same reasons set forth in the rejection of claims 2, and 3. In Rich a condition in which the ratio of Ec/Io above a threshold is stronger than that in which the ration of Ec/Io below a threshold.

Regarding claims 8-9, these claims have similar limitations as claims 2-3, respectively. Therefore, they are rejected under Gustaffson-Yano-Rich for the same reasons set forth in the rejection of claims 2-3.

Regarding claim 10, this claim has similar limitations as claims 8 and 9. Therefore, it is rejected under Gustafsson-Yano-Rich for the same reasons set forth in the rejection of claims 8 and 9.

Regarding claims 44-45, these claims have similar limitations as claims 2-3, respectively. Therefore, they are rejected under Gustaffson-Yano-Rich for the same reasons set forth in the rejection of claims 2-3.

Regarding claim 46, this claim has similar limitations as claims 2 and 3. Therefore, it is rejected under Gustafsson-Yano-Rich for the same reasons set forth in the rejection of claims 2 and 3.

7. Claims 14-22, 24-25, 27, 30-41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rich, in view of Willey (US 6,505,058), and further in view of Gustafsson.

Regarding claim 14, Rich discloses all claimed limitations, except determining a first data bit of the QPCH received a mobile station in accordance with processing of one or more signals produced based on the determined receive diversity.

One skill in the art would recognize the advantage of employing a single bit message of QPCH based on a determined receive diversity to wake up a mobile

station so that the battery life of the mobile station can be greatly enhanced. The reason for that is the mobile station only wakes up when necessary.

Willey discloses a method for determining whether to wake up a mobile station. The mobile station receives a QPCH bit representing by "On" (corresponding to 1), "Off" (corresponding to zero), and "not certain" (corresponding to erasure). "On" also means the base station's clearly transmitted the bit. This further means that the mobile station should not in sleep mode, so that it could receive data from the base station, see col. 5, lines 56-67, and col.5-line 45 to col.6-line 7.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine Rich with Willey. The suggestion/motivation for doing so would have been to provide a mobile station a capability of using a single bit message of QPCH, transmitted form the base station, based on a determined receive diversity to indicate a mode in such a way a mobile station can configure itself to sleep mode or not in accordance with the data bit to enhance its battery life.

Rich and Willey, however, do not teach power consumption of the receiver is controlled based on the receive diversity.

Gustafsson discloses controlled antenna diversity. In Gustafsson, a mobile station determines whether to use diversity based on the radio performance, i.e. channel condition, and remaining battery power, see col. 4, lines 4-9.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to employ a mechanism in which a mobile's decision whether it wants to use diversity basing on the remaining battery power as taught by Gustafsson into the

combination system of Rich and Willey. The suggestion/motivation for doing so would have been to maintain battery power for longer performance.

Regarding claim 15, the system of Rich-Willey-Gustafsson enables a mobile station in sleep mode when the determined first data bit is "Off", see Rich at col. 5, lines 56-67, and col.5-line 45 to col.6-line 7.

Regarding claim 16, the system of Rich-Willey-Gustafsson should indicate a mobile station not in sleep mode when the determined first data bit is "On" or "not certain", see Rich at col. 5, lines 56-67, and col.5-line 45 to col.6-line 7.

Regarding claim 17, the system of Rich-Willey-Gustafsson should direct its resource to decode the received information when the determined first data bit is "On" or "not certain" see Rich at col. 5, lines 56-67, and col.5-line 45 to col.6-line 7.

Regarding claim 18, the system of Rich-Willey-Gustafsson enables a mobile station in sleep mode when the determined second data bit is "Off", see Rich at col. 5, lines 56-67, and col.5-line 45 to col.6-line 7.

Regarding claim 19, this claim has similar limitations as claim 14. Therefore, it is rejected under Gustafsson-Yano-Rich for the same reasons set forth in the rejection of claim 14.

Regarding claim 20, this claim has similar limitations as claim 15. Therefore, it is rejected under Gustafsson-Yano-Rich for the same reasons set forth in the rejection of claim 15.

Regarding claim 21, this claim has similar limitations as claims 17 and 18. Therefore, it is rejected under Gustafsson-Yano-Rich for the same reasons set forth in the rejection of claims 17 and 18.

Regarding claim 22, this claim has similar limitations as claims 14 and 16. Therefore, it is rejected under Gustafsson-Yano-Rich for the same reasons set forth in the rejection of claims 14 and 16.

Regarding claim 24, this claim has similar limitations as claim 15. Therefore, it is rejected under Gustafsson-Yano-Rich for the same reasons set forth in the rejection of claim 15.

Regarding claim 25, this claim has similar limitations as claims 16 and 17. Therefore, it is rejected under Gustafsson-Yano-Rich for the same reasons set forth in the rejection of claims 16 and 17.

Regarding claim 26, this claim has similar limitations as claims 16 and 18. Therefore, it is rejected under Gustafsson-Yano-Rich for the same reasons set forth in the rejection of claims 16 and 18.

Regarding claim 27, this claim has similar limitations as claim 14. Therefore, it is rejected under Gustafsson-Yano-Rich for the same reasons set forth in the rejection of claim 14.

Regarding claim 28, this claim has similar limitations as claim 15. Therefore, it is rejected under Gustafsson-Yano-Rich for the same reasons set forth in the rejection of claim 15.

Regarding claim 30, this claim has similar limitations as claim 25. Therefore, it is rejected under Gustafsson-Yano-Rich for the same reasons set forth in the rejection of claim 25. The mobile station of Rich is able to direct the battery power supply to receive a receive channel in response to the result of either a one or an erasure of Willey's bit.

Regarding claim 31, this claim has similar limitations as claim 26. Therefore, it is rejected under Gustafsson-Yano-Rich for the same reasons set forth in the rejection of claim 26. The mobile station of Rich is able to direct the battery power supply to receive a receive channel in response to the result of either a one or an erasure of Willey's bit.

Regarding claim 32, this claim has similar limitations as claims 14-17. Therefore, it is rejected under Rich-Willey-Gustafsson for the same reasons set forth in the rejection of claims 14-17. The mobile station of Rich is able to direct the battery power supply to receive a receive channel in response to the result of either a one or an erasure of Willey's bit.

Regarding claim 33, in Rich the controller 108-fig. 1 is capable of directing the mobile resources, i.e., battery power supply, to receive a receive channel, after the determining receive diversity at the receiver, in accordance with a receive processing of the determined receive diversity.

Regarding claim 34, this claim has similar limitations as claims 31-32. Therefore, it is rejected under Rich-Willey-Gustafsson for the same reasons set forth in the rejection of claims 31-32.

Regarding claim 35, this claim has similar limitations as claim 33. Therefore, it is rejected under Rich-Willey-Gustafsson for the same reasons set forth in the rejection of claim 35.

Regarding claim 36, this claim has similar limitations as claim 32. Therefore, it is rejected under Rich-Willey-Gustafsson for the same reasons set forth in the rejection of claim 32.

Regarding claim 37, this claim has similar limitations as claim 17. Therefore, it is rejected under Rich-Willey-Gustafsson for the same reasons set forth in the rejection of claim 17.

Regarding claim 38, if the bit of Willey is an erasure based on the condition of the pilot channel received at the receiver of Rich, a condition in which the channel condition is below the threshold, the controller 108-fig.1 of Rich directing the battery power supply and the antennas to receive a receive channel.

Regarding claim 39, this claim has similar limitations as claim 36. Therefore, it is rejected under Rich-Willey-Gustafsson for the same reasons set forth in the rejection of claim 36.

Regarding claim 40, this claim has similar limitations as claim 17. Therefore, it is rejected under Rich-Willey-Gustafsson for the same reasons set forth in the rejection of claim 17.

Regarding claim 41, this claim has similar limitations as claim 38. Therefore, it is rejected under Rich-Willey-Gustafsson for the same reasons set forth in the rejection of claim 38.

Allowable Subject Matter

8. Claims 5-6, 11-13 are objected to as being independent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the

limitations of the base claim and any intervening claims, and if the rejected base claim has overcome the obviousness-type double patenting.

9. Claims 47-48 would be allowable if claim 43 rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph and 101 rejection, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

Response to Arguments

10. Applicant's arguments with respect to claims 1, 7, 14, 19, 22, 27, 32, 34, 36, 39, 42, 43 and 50 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Duc Ho whose telephone number is (571) 272-3147. The examiner can normally be reached on Monday through Thursday from 7:30 am to 6:00 pm.

If attempt to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jay Patel, can be reached on (571) 272-2988.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (571) 272-2600.

The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

12. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Patent Examiner
/DUC C HO/
Primary Examiner, Art Unit 2419
2-2-09

One skill in the art would recognize the advantage of

Newman discloses media

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine A with B(Newman).

The suggestion/motivation for doing so would have been to provide

Therefore, it would have been obvious to combine A with B(Newman) to obtain the invention as specified in claim 1.

Regarding claims 7-8, these claims have similar limitations as claims 1-2. Therefore, they are rejected under ****-***** for the same reasons as set forth in the rejection of claim 1-2.

Allowable subject matter

2. Claims 1-26, and 28-29 are allowed.

3. Claim 27 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action.

Conclusion

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Deb et al.(US 6,172,990); Wilson (US 6,996,105); Thompson et al.(US 5,491,802) are cited to show packet processing device, which is considered pertinent to the claimed invention.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Duc Ho whose telephone number is (571) 272-3147. The examiner can normally be reached on Monday through Thursday from 7:30 am to 6:00 pm.

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Patent Examiner

/DUC C HO/

Primary Examiner, Art Unit 2419

2-2-09